**WHAT IS CLAIMED IS:**

1. A method of detecting an antigen of interest in a sample comprising:

contacting the sample with a multispecific molecule, said multispecific molecule being capable of simultaneously binding the antigen of interest and a labeled detection probe, and being other than two monoclonal antibodies that are chemically cross linked, and allowing an antigen-molecule complex to form;

contacting the sample with a labeled detection probe, wherein said detection probe comprises at least seven moles of a detectable label, for sufficient time to form an antigen-molecule-probe complex; and

detecting the antigen-molecule-probe.

2. The method of claim 1, wherein said antigen of interest is selected from the group consisting of drug antigens, tumor antigens, viral antigens, bacterial antigens, hormones, plasma proteins, plaque antigens, haptens, and steroids.

3. The method of claim 3, wherein said tumor antigen is associated with breast, prostate, brain, liver, kidney, colon, pancreatic, stomach, or lung cancer.

4. The method of claim 3, wherein said viral antigens are associated with hepatitis type A, hepatitis type B, hepatitis type C, influenza, varicella, adenovirus, herpes simplex type I (HSV-I), herpes simplex type II (HSV-II), rinderpest, rhinovirus, echovirus, rotavirus, respiratory syncytial virus, papilloma virus, papova virus, cytomegalovirus, echinovirus, arbovirus, hantavirus, coxsachie virus, mumps virus, measles virus, rubella virus, polio virus, human immunodeficiency virus type I (HIV-I), and human immunodeficiency virus type II (HIV-II), picornaviridae, enteroviruses, caliciviridae, Norwalk viruses, Dengue virus, alphaviruses, flaviviruses, coronaviruses, rabies virus, Marburg viruses, ebola viruses, parainfluenza virus, orthomyxoviruses, bunyaviruses, arenaviruses, reoviruses, rotaviruses, orbiviruses, human T cell leukemia virus type I, human T cell leukemia virus type II, simian immunodeficiency virus, lentiviruses, polyomaviruses, parvoviruses, Epstein-Barr virus, human herpesvirus-6, cercopithecine herpes virus 1 (B virus), and poxviruses.

5. The method of claim 3, wherein said hormone is thyroid stimulating hormone (TSR) or human chorionic gonadotrophin (hCG).

6. The method of claim 3, wherein said plasma protein is a fibrin degradation product (FDP), a C-reactive protein (CRP), a carcinoembryonic protein, α-fetoprotein (AFP), or a carcinoembryonic antigen (CEA).

7. The method of claim 3, wherein said hapten is angiotensin I, vasopressin, somatostatin, atrial natriuretic hormone, endoserine, luteinizing hormone releasing hormone (LH-RH), kassinin or other peptides.

8. The method of claim 3, wherein said steroid is progesterone, testosterone, cortisol or another steroid.

9. The method of claim 1, wherein said sample is a sample from a living organism or an inanimate object.

10. The method of claim 9, wherein said living organism is a human patient.

11. The method of claim 10, wherein said sample from a human patient is a tissue, blood, saliva, or plasma sample.

12. The method of claim 1, wherein said assay is conducted *in vitro*.

13. The method of claim 1, wherein about $2 \times 10^{-16}$ mole of the antigen is present in the sample.

14. The method of claim 12, wherein about $2 \times 10^{-18}$ mole of the antigen is present in the sample.

15. The method of claim 12, wherein about $2 \times 10^{-21}$ mole of the antigen is present in the sample.

16. The method of claim 1, wherein said detection probe comprises a polymer backbone.

17. The method of claim 16, wherein said polymer backbone is polylysine.

18. The method of claim 1, wherein the detection probe is labeled with a radiolabel.

19. The method of claim 1, wherein the detection probe is labeled with a flourescent label.

20. The method of claim 1, wherein the detection probe is labeled with an enzymatic label.

21. The method of claim 20, wherein said label is horseradish peroxidase.

22. The method of claim 1, wherein the detection probe is paramagnetically labeled.

23. The method of claim 22, wherein said detection probe is labeled with at least 9 labels.

24. The method of claim 22, wherein said detection probe is labeled with at least 12 moles of label.

25. The method of claim 22, wherein said detection probe is labeled with at least 18 moles of label.

26. A method of imaging an antigen bearing structure in a patient, comprising:

administering to the patient a multispecific molecule, said multispecific molecule being other than two monoclonal antibodies that are chemically cross linked, and allowing an antigen-molecule complex to form;

administering to the patient a detection probe, wherein said detection probe comprises at least seven moles of a detectable label, and allowing an antigen-molecule-probe to form; and

detecting the antigen-molecule-probe, thereby imaging the antigen bearing structure.

27. The method of claim 26, wherein said antigen bearing structure is a tumor.

28. The method of claim 26, wherein said tumor is a breast, prostate, brain, liver, kidney, colon, pancreatic, stomach, or lung tumor.

29. The method of claim 26, wherein said patient is a human.

30. The method of claim 26, wherein said assay has a sensitivity of about 2 x $10^{-16}$ per mole of antigen.

31. The method of claim 30, wherein said assay has a sensitivity of about 2 x $10^{-18}$ per mole of antigen.

32. The method of claim 30, wherein said assay has a sensitivity of about 2 x $10^{-21}$ per mole of antigen.

33. The method of claim 26, wherein said detection probe comprises a polylysine backbone.

34. The method of claim 26, wherein said detection probe is labeled with at least 9 labels.

35. The method of claim 33, wherein said detection probe is labeled with at least 12 labels.

36. The method of claim 33, wherein said detection probe is labeled with at least 18 labels.

37. The method of claim 33, wherein said detection probe is labeled with at least 24 labels.

38. The method of claim 26, wherein said label is a radiolabel.

39. The method of claim 26, wherein said label is paramagnetic.

40. The method of claim 26, wherein said detection probe further comprises a drug moiety.

41. A kit for detecting for detecting an antigen of interest in a sample, comprising:

a labeled polymer detection probe;

a multispecific molecule which is other than two monoclonal antibodies that are chemically cross linked; and

instructions for using the kit to detect an antigen of interest in a body.

42. The kit of claim 41, wherein said sample is a patient's blood, saliva, or plasma.

43. The kit of claim 41, wherein said patient is a human.

44. The kit of claim 41, wherein said detection probe comprises a polylysine backbone.

45. The kit of claim 41, wherein the detection probe is labeled with a radiolabel.

46. The kit of claim 41, wherein the detection probe is labeled with a flourescent label.

47. The kit of claim 41, wherein the detection probe is labeled with an enzymatic label.

48. The kit of claim 47, wherein said label is horseradish peroxidase.

49. The kit of claim 41, wherein said detection probe is labeled with at least 18 labels.

50. The kit of claim 49, wherein said detection probe is labeled with at least 24 labels.

51. A detectable complex comprising an antigen of interest, a multispecific molecule which is other than two monoclonal antibodies that are chemically cross linked, and a detection probe.

52. The detectable complex of claim 51, wherein said complex is detectable at concentrations of $2 \times 10^{-18}$ M or less of the antigen.

53. A detection probe comprising a polylysine backbone, about 18 or more horseradish peroxidase labels per mole of probe, and one or more binding moieties.

54. The detection probe of claim 53, wherein said binding moiety is DTPA.

55. A detection probe of claim 54, comprising about 24 or more horseradish peroxidase labels per mole of probe.